

CLAIMS

I CLAIM AS MY INVENTION:

1. A sensor assembly for sensing direction of rotation and/or position of an object, the assembly comprising:
 - a target wheel;
 - a pair of sensing elements configured to generate respective signals as the wheel rotates in response to structure on the target wheel;
 - a first circuit coupled to receive a signal from at least one of the sensing elements for detecting direction of rotation of the target wheel; and
 - a second circuit coupled to receive each signal from the sensing elements for detecting position of the target wheel.
2. The sensor assembly of claim 1 wherein said first circuit comprises a pair of circuit stages, each of said stages coupled to respectively receive a signal from a respective one of the sensing elements.
3. The sensor assembly of claim 2 further comprising a flip-flop coupled to receive the output signals from the circuit stage pair for detecting direction of rotation to trigger a signal indicative of the direction of rotation of the target wheel.
4. The sensor assembly of claim 1 wherein each circuit stage for sensing direction of rotation comprises a peak and valley detector.
5. The sensor assembly of claim 1 wherein each circuit stage for sensing direction of rotation comprises a zero-crossings detector.
6. The sensor assembly of claim 1 wherein said first circuit comprises a single circuit stage coupled to receive a signal from a respective one of the sensing elements.

7. The sensor assembly of claim 1 further comprising a flip-flop coupled to receive the output signal from the single circuit stage and an output signal from the second circuit to trigger a signal indicative of the direction of rotation of the target wheel.

8. A method for sensing direction of rotation and/or position of an object, the method comprising:

providing a target wheel;

arranging a pair of sensing elements to generate respective signals as the wheel rotates in response to structure on the target wheel;

coupling a first circuit to receive a signal from at least one of the sensing elements for detecting direction of rotation of the target wheel; and

coupling a second circuit to receive each signal from the sensing elements for detecting position of the target wheel.

9. The method of claim 8 wherein coupling said first circuit comprises coupling a pair of circuit stages, each of said stages coupled to respectively receive a signal from a respective one of the sensing elements.

10. The method of claim 9 further comprising triggering a signal indicative of the direction of rotation of the target wheel in response to a timing relationship between the output signals from the circuit stage pair.

11. The method of claim 9 further comprising detecting peaks and valleys in the signals received by each circuit stage.

12. The method of claim 9 further comprising detecting zero crossings in the signals received by each circuit stage.

13. The method of claim 8 wherein coupling said first circuit comprises coupling a single circuit stage to receive a signal from a respective one of the sensing elements.

14. The method of claim 8 further comprising triggering a signal indicative of the direction of rotation of the target wheel in response to a timing relationship between the output signal from the single circuit stage and the second circuit.